WIRING SYMBOLS, WIRING ABBREVIATIONS, AND DEFINITIONS
WIRING AND CABLING

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1. GENERAL

1.01 This section defines the wiring symbols and abbreviations generally used in equipment work. It also includes a list of definitions of cabling, wiring, and connecting terms. Wiring convention symbols for tabular wiring diagrams produced by electronic data processing methods shall be in accordance with Section 005-105-102, Tabular Wiring Diagrams, Description.

1.02 This section is reissued to make changes which are listed under **5. REASONS FOR REISSUE** at the end of this section. Revision arrows are used to emphasize the more significant changes.

1.03 The requirements covered in this section shall be followed, except as modified by applicable specifications and drawings.

1.04 The general equipment requirements for forming, fanning, sewing, and skinning wire and cable are detailed in Section 800-612-153.

1.05 The general equipment requirements for gauge and insulation of wire are covered in Section 800-612-152.

2. WIRING SYMBOLS USED ON MANUFACTURING DRAWINGS

2.01 Various symbols and letters are used on manufacturing drawings; the meanings of those most commonly used are listed below.

Note: Where a symbol definition is marked by an asterisk (*), the symbol may be applied, if required, to insulated pigtail leads on those panel mounted coils, transformers, etc which are not designed for mounting by their pigtail leads. These symbols shall not be applied to straps or to pigtail leads of components which are designed for mounting by their pigtail leads.

SYMBOL	MEANING
a	Wire or pigtail lead which requires special treatment as specified in schematic note and/or equipment information.
a1, a2, etc	When two or more special treatments of wires or pigtail leads (see symbol a) are required on the same drawing, numerical suffixes identify the 2nd, 3rd, etc, treatments specified on the drawing.
A	Wire in handmade roof cable.
AT	Wire not to be connected until after shop tests are completed.
AT1	Wire to be connected by the installer during installation tests and relay adjustments.

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SYMBOL	MEANING
⌐→ B	Terminal nearest base of terminal strip. For horizontally mounted terminal strips with two fanning strips, the terminal nearest to the lower fanning strip shall be considered the one nearest the base. For vertically mounted terminal strips with two fanning strips, the terminal nearest to the right fanning strip shall be considered the one nearest the base.
B1	Terminal nearest panel or mounting suface (for 38-type resistors, varistors, etc).
C	Wiring run in a separate switchboard cable or sewed local power cable from all "C2" wires as well as from all other wires not marked on the circuit schematic drawings. (No segregation is required in local cables, in the formed ends of switchboard cables, in loose wire forms, in loose wiring run on cable racks, or within the unit on surface-wired equipment. All "C" wires may be grouped together in the same cable with other "C" wires or "C5" wires in accordance with information shown in Section 800-612-162, Selection of Switchboard Cables.)
→ CC	Continuous connection.
C1	Wiring taped and run in a separate cable form for electrical reasons, and placed inside of the regular form when to run on the outside of the form would interfere with the hinge action or other required movement of the regular form. (The same rules followed for the segregation and grouping of "C2", "C4", and "C5" wires apply for "C1" wiring. As brought out above, "C1" wiring is a special treatment for "C2", "C4", or "C5" wires in keyshelf or other hinged forms.)
C2	Wiring run in a separate switchboard cable or separate local cable so that the required segregation is maintained throughout its entire length, that is, in switchboard cable, in the formed ends of switchboard cable, in local cable, and in sewed local power cable. All wires marked "C2" should be segregated from all "C" wires, other "C2" wires (except identical "C2" wires in other identical circuits), "C4" wires, and "C5" wires as well as from all other wires not marked on the circuit schematic drawings. (No segregation is required in loose wiring run on cable racks, in loose wire forms, in loose wiring in fanning rings or other wire retaining devices, or within the unit on surface-wired equipment.)
C4	Wiring carrying commercial power, within a unit, which must be kept separate from all other wiring. (No segregation is required within the unit on surface-wired equipment. All "C4" wires may be grouped together.)

SYMBOL	MEANING
C5	Wiring run in a separate switchboard cable or separate local cable so that the required segregation is maintained throughout its entire length, that is, in switchboard cable, in the formed ends of switchboard cable, in local cable, and in sewed local power cable. All wires marked "C5" should be segregated from all "C2" wires and "C4" wires as well as from all other wires not marked on the circuit schematic drawings. (No segregation is required in loose wiring run on cable racks, in loose wire forms, in loose wiring in fanning rings or other wire retaining devices, or within the unit on surface-wired equipment. All "C5" wires may be grouped together in the same cable with other "C5" wires but, throughout their switchboard or sewed local power cable portion, they may be run with "C" wires in accordance with information shown in Section 800-612-162, Selection of Switchboard Cables.)
CU	Coaxial cable, such as 724, 727A, 728A, 730A, 731A, KS-19224, and KS-21112 types.
D	*Single wire run in the open (not sewn in cable form), from terminal to terminal, parallel or perpendicular to the edges and plane of the mounting plate or panel in the shortest possible manner consistent with the above requirements. (Color, gauge, and type of wire to be specified.)
D1	*Single wire run in the open (not sewn in cable form), directly from terminal to terminal, with a minimum amount of slack consistent with the type of terminals and the component arrangement and mounting conditions encountered. (Color, gauge, and type of wire to be specified.)
D2	*Planned wiring, that is, wiring which must be run in certain specified paths. [Complete information as to color, gauge, type of wire, pairing, paths, whether the wires are to be kept out in the open or (if the insulation permits), dressed near or against the mounting plate, or any other peculiarity to be specified in each case.]
D3	Wiring run loose and dressed near or against the mounting plate or panel, or adjacent to the plane of the mounting surface, and run parallel to the edges of the plate or panel. This type of surface wiring differs from "SW1" surface wiring in that pairing is observed and wires other than 24-gauge "BW" type are used. The colors generally used, except when pairs, triples, or quads are specified, are as follows (see Section 800-612-161, Color Combinations, for specific requirements regarding colors for surface wiring). Green — General wiring (except battery and ground wires) Red — Battery wires Black — Ground wires (Gauge, type of wire, colors of pairs, triples, and quads to be specified. General paths for groups of wires may also be specified.) ***Note:*** Polyvinyl chloride (Pvc) insulated wire such as BU- and BY-type is not recommended for surface wiring because of the cold flow damage to insulation which mught occur when such wires are dressed against the sharp edges or corners of apparatus terminals.

SYMBOL	MEANING
⌐→ D4	*Wiring run loose and dressed near or against the surface of the mounting plate or panel in definite paths. This type of surface wiring differs from other surface wiring in that (1) the color, gauge, type of wire and wire paths are to be specified by the design engineer on the SD- or ED-drawing or other applicable drawing or specification, and (2) the wire paths shall be controlled by a specific computer program for automatic wiring, and wire path rules for manual repairs and changes.
D5	*Wiring run loose and dressed near or against the surface of the mounting plate or panel. This type of surface wiring differs from other surface wiring in that the color, gauge, type of wire and wire paths are to be specified by the design engineer. Complete information for this wiring shall be specified on equipment notes in the SD or ED drawing or other applicable drawing or specification.
DU	Connection made to an unused terminal of a component. (Generally used in conjunction with the termination of pigtail leads.)
E	Adjacent rows (perpendicular to the fanning strip) of terminals.
⌐→ EU	Shielded Teflon or polyethylene-insulated wire, such as KS-19414, KS-19195 L2; type BF, or DL-type wire; and shielded pairs in 750-type (except 754-) and 763-type cables. For 750A through 753A, and 755A through 759A cable, symbols EU1, EU2, etc, may be used as necessary. In all cases, the drawing note will specify the gauge of wire and code of cable.

SYMBOL	MEANING
F	Wires to the same component brought from a form at separate stitches. Used for maintenance reasons on local cables to differentiate between two or more wires of the same color leaving a form at one point. The F stitch is always the separate stitch toward the tip of the cable arm in the form. Where there are a number of wires of this type, F, F1, F2, F3, etc, indicates the order in which they are brought out, the lowest numbered wires being brought out nearest the regular stitch. Where these wires are to be identified on tabular wiring diagrams, symbols F, R, S, T, etc, shall be substituted for symbols F, F1, F2, F3, etc, respectively.
FF	Wires to the same component which must be identified by an extra stitch when the component is served by a single regular stitch, but which require no additional extra stitches for identification when the component is served by two or more regular stitches. (For example, 110A repeating coils to which wires may be brought out from one or more regular stitches depending upon the method of mounting.)
⌐→ FT	Flat flexible-type cables (ribbon-type cables).
└→ GT (Mfr Disc.)	Ground tracer wire (run either in or under the braid of shielded wire).
FT1, FT2, etc	Where two or more flat-flexible cables are to be provided, numerical suffixes are used on the drawing to identify the cables.

SYMBOL	MEANING
J	Indicates manner in which a key is mounted. Used, for example: to mark "top end of key—key-shelf open" or "end of key nearer hinge looking at terminal side," etc, use J, J1, J2, etc, where several such notes are required on the same drawing. The use in each case is defined on the manufacturing drawing.
K	Top or left row (perpendicular to the fanning strip) of terminals.
K1	Top or left terminal on 203-type and 700A terminal strips.
K2	Top left terminal on 224-type terminal strip looking at local cable side of strip.
K3	Bottom left terminal on 224-type terminal strip looking at local cable side of strip.
K4	Right-hand terminal lug looking at rear of terminal strip.
L	Strap placed on first equipped circuit of group only.
Ⓛ	Live wire to be insulated when not connected.
LC	Local cable wires.
LC1, LC2, etc	When two or more local cables are required for the same equipment unit, numerical suffixes identify the 2nd, 3rd, etc, local cables specified on the drawing.
LL	Terminals of adjacent components, soldered together. For example, adjacent components which are connected directly to each other by butting or overlapping the terminals.
LP	Wires looped and not cut when optional wiring is not connected or component is not furnished.
LP1	Wires spliced and looped when optional wiring is not connected or component is not furnished.
LW	Loose wiring not to be sewed into cable forms but run loose and held into cable formation by fanning rings, other wire retaining devices, or ties. (Does not apply to loose wire run on cable racks.)
O	Cross-connecting terminal. ←
OC	Omit connection and consider as a continuous wire (wires need not be looped) when associated component is not furnished on surface-wired equipment. ←
OL	Omit wire unless components for both ends are provided on surface-wired equipment.
P	Paired wires.
P, TW	Twist symbol (TW) shown in addition to pairing symbol (P) denotes paired twisted wires having a frequency of twist tighter than the normal manufactured frequency of twist obtained when pairing symbol only is specified. A drawing note shall specify the required maximum length per completed twist expressed in inches.
PT	Leads furnished as parts of components. These are known as pigtail leads.
PTa	Pigtail leads furnished as parts of components and requiring special treatment of length and/or path. Complete treatment is specified in the defining note. For example: "less than 3/8 inch but not less than ( ) long;" "( ) ± ( ) inch long;" or "run (path is described or reference is made to figure or drawing where path is shown)".

SYMBOL	MEANING
PTa1, PTa2, etc	When two or more special treatments of pigtail leads (see PTa) are required on the same drawing, numerical suffixes identify the 2nd, 3rd, etc, treatments specified on the drawing.
→ PW	Printed wiring.
Q	Quad (Multiple twin—two pairs twisted together.)
RU	Twin-conductor shielded office cable, such as 754-, 760-, 761-, 762-, 763-, and 764-type cable. Unless otherwise specified 761-type cable will be furnished. Where other than 761A cable is desired, an equipment note on the schematic will specify the code of the cable required.
SH	Shank connection is a connection made behind the hole, hook, or notch of a terminal. (Used with soldered connections only.)
SKR	Extended skinner connection—a connection made by extending the bare portion of a skinner terminating on a terminal to an adjacent terminal or next terminal in line in order to avoid the use of a strap or loop. (Used with soldered connections only.)
SS	Surface strapping is strapping located near the end rather than at the base of the terminal to facilitate frequent changing or removal by the maintenance force.
SW (Mfr Disc.)	This symbol denoted surface wiring restricted to the use of "G" type wire, which had insulation that was easily pushed back. However, "SW" wiring has been replaced by "SW1" wiring.

SYMBOL	MEANING
SW1	Surface wiring (general use surface wiring), restricted to 24-gauge "BW" type wire, run loose and dressed near or against the mounting plate or panel, or adjacent to the plane of the mounting surface. The colors generally used, except when pairs, triples, or quads are specified, are as follows (see Section 800-612-161, Color Combinations, for specific requirements regarding colors for surface wiring). Green — General wiring (except battery and ground wires) Red — Gattery wires (except step-by-step switches) Ground wires on step-by-step switches Black — Ground wires (except step-by-step switches) White — Battery wires on step-by-step switches Other colors may be used when required for specific purposes or to facilitate manufacture.
T	Triple (three wires twisted together).
TW	Wires twisted together (4TW, 5TW, etc).
⌐→ U ↳	Shielded textile insulated wire, such as P- and BK-type wire and shielded pairs in 479M cable. For other gauges or types of insulation, symbols U1, U2, etc, may be used as necessary. In all cases, the drawing note will specify the gauge and code of wire.
1W	One-conductor cross-connection wire.
2W	2-conductor cross-connection wire.

SYMBOL	MEANING
3W	3-conductor cross-connection wire.
4W	4-conductor cross-connection wire (spiral).
4W (P)	4-conductor cross-connection wire (multiple twin).
	Screw connection or binding post.
	Record optional component or wiring.
	Nonrecord optional component or wiring.
	Wire not in switchboard or local cable, to be run by installer.
	Coaxial shield connection.
	Coaxial shield connection to terminal punching or flag-type connector.
	Coaxial shield connection to component cover.
	Wires run in switchboard cable.
(Mfr Disc.)	Shield connection with ground tracer wire.
	Shield connection without ground tracer wire.
	Shield connection to component cover.
	Splice
	Connection furnished as part of component.
	Common strapping.
	Riser to level of component.
	Parallel cable connector.

3. ABBREVIATIONS FOR WIRE INSULATIONS

3.01 Abbreviations for wire insulations were not standardized in the past and several abbreviations frequently were used for the same type of insulation. Also, in certain cases, the same letter was used to abbreviate different terms, as for example, B for braid and black; C for covered, conductor, and copper; and S for silk and single. To avoid confusion, insulation abbreviations are now standardized so that the letters used have the following fixed meanings.

A —Acetate Yarn

Ab —Cellulose Aceto-butyrate Tape

B —Braid or Braided

C —Cotton

D —Double (serving)

E —Enamel or Enameled (oleoresinous type)

Ee —Polyester Enamel

En —Nylon Enamel

Et —Polytetrafluoroethylene (Teflon) Enamel

Eu —Polyurethane Enamel

Eun—Polyurethane Nylon Enamel

Ev —Vinyl Acetal Enamel

G —Glass

Imp—Wax impregnated

IPvc—Irradiated Polyvinyl Chloride (extruded coating)

L —Lacquered

N —Nylon (yarn or extruded)

Pe —Polyethylene (extruded)

Pvc—Polyvinyl Chloride (extruded coating)

R —Rubber

S —Silk

TFE—Polytetrafluoroethylene (Teflon, extruded coating)

3.02 Informing an abbreviation for a wire insulation, the letters are arranged from left to right in the order of the application of the insulating materials from the conductor out, as for example, EDACL for enamel, double acetate, cotton, lacquered wire. If neither D nor B appears in an abbreviation, a single serving of the insulation is implied. The use of the letter S to indicate a single serving has been discontinued. Likewise, the use of the letter B for black, C for copper, covered, and conductor is discontinued. The letter T for tinned is used only in those cases where a question might arise as to whether a wire is tinned or untinned. Otherwise, the use of tinned copper wire will be assumed and the abbreviation T omitted from wiring drawings.

3.03 In forming abbreviations for wires having a braided covering, the letter immediately preceding the B indicates the material of which the braid is made. For example, DACB is insulated with two acetate yarn servings and a cotton braid.

3.04 The abbreviations shall be interpreted as the letters indicate, for example, DACL wire will be known as double acetate, cotton, lacquered wire; DNCCB wire as double nylon, cotton (served), cotton braided wire, etc.

3.05 As a matter of convenience, the following list contains abbreviations which were used in the past, as well as those which are presently approved. In preparing new drawings and specifications, the present abbreviations should be used, except for coded wires which are specified by the code-type letters only.

KIND OF INSULATION	ABBREVIATIONS PREVIOUSLY USED	PRESENT ABBREVIATIONS
Acetate, Cotton	—	AC
Cotton Braid	—	CB
Cotton, Polyvinyl Chloride	—	CPvc
Double Acetate Yarn, Cotton, Lacquered	—	DACL
Double Acetate Yarn, Cotton Braid	—	DACB
Double Acetate Yarn, Cotton Braid, Lacquered	—	DACBL
Double Acetate Yarn, Cotton Braid, Wax Impregnated	—	DACB Imp
Double Cotton, Lacquered	—	DCL
Double Cotton	DCC,DCCC	DC
Double Cotton Braid	DCB	CBCB
Double Nylon Yarn, Single Cotton, Cotton Braid	—	DNCCB
Double Nylon Yarn, Single Cotton, Cotton Braid, Lacquered	—	DNCCBL
Double Silk	DSC,DSCC	DS
Double Silk, Single Cotton	DS & CC, DSSCCC, DSCC	DSC
Double Silk, Single Cotton, Cotton Braid	—	DSCCB
Double Silk, Cotton Braid, Lacquered	—	DSCBL
Double Silk, Cotton, Lacquered	—	DSCL
Double Silk, Cotton, Silk Braid	DSSCCSB	DSCSB
Double Silk, Silk Braid, Lacquered	—	DSSBL

KIND OF INSULATION	ABBREVIATIONS PREVIOUSLY USED	PRESENT ABBREVIATIONS
Enamel	BE,BECC	E
Enamel, Single Acetate Yarn, Cotton Braid	—	EACB
Enamel, Single Cotton	BESC, BESCCC	EC
Enamel, Double Acetate Yarn, Cotton Braid, Lacquered	—	EDACBL
Enamel, Double Acetate Yarn, Cotton, Lacquered	—	EDACL
Enamel, Double Cotton	BEDCC, BEDC, BEDCCC	EDC
Enamel, Double Cotton, Lacquered	—	EDCL
Enamel, Double Silk	BEDS, BEDSCC	EDS
Enamel, Double Silk, Single Cotton	BEDS & CC, BEDSSC, BEDSSCCC	EDSC
Enamel, Double Silk, Cotton, Lacquered	—	EDSCL
Enamel, Double Silk, Silk Braid, Lacquered	—	EDSSBL
Enamel, Single Silk	BESS, BESSCC	ES
Enamel, Single Silk, Cotton Braid	BBE	ESCB
Enamel, Single Silk, Double Cotton	BESS & DC	ESDC
Irradiated Polyvinyl Chloride	—	IPvc
Nylon enamel	Ne	En
Polyethylene	—	Pe
Polyethylene, Polyvinyl Chloride	—	PePvc
Polytetrafluoro-ethylene (Teflon)	—	TFE
Polyvinyl Chloride	—	Pvc
Polyvinyl Chloride, Cotton, Lacquered	—	PvcCL
Polyvinyl Chloride, Cotton Braid, Lacquered	—	PvcCBL
Polyvinyl Chloride, Glass Braid, Lacquered	—	PvcGBL
Single Acetate Yarn, Single Cotton	—	AC
Single Acetate Yarn, Single Cotton Braid	—	ACB
Single Cotton	SC, CC, SCCC	C
Single Cotton, Cotton Braid, Lacquered	—	CCBL
Single Silk	SS,SSCC	S
Single Silk, Single Cotton	SS & CC, SSCC, SSSCCC	SC
Single Silk,	BSS & CC,	SCB

KIND OF INSULATION	ABBREVIATIONS PREVIOUSLY USED	PRESENT ABBREVIATIONS
Cotton Braid	SS & CB	
Triple Acetate Yarn, Single Cotton, Silk Braid, Lacquered	—	3ACSBL
Triple Cellulose Aceto-butyrate Tape, Double Glass Braid, Lacquered	—	3AbGBGBL
Double Cellulose Aceto-butyrate Tape, Glass Braid, Cotton Braid, Lacquered	—	DAbGBCBL

4. DEFINITIONS OF WIRING, CABLING, AND CONNECTING TERMS

4.01 The following defines the various wiring, cabling, and connecting terms which are most commonly used in equipment work.

Arm: A branch or leg of the main section of a cable form.

Banjo Strapping: Bare wire which is run directly from terminal to terminal, usually on crossbar switches.

Bare Strap: (See ***Strap.***) A strap made of bare tinned wire.

Butt: The point at which the sheath or covering of a cable terminates.

Butt Leg: The leg nearest the butt or main body of a cable form having two or more legs or branches.

C Wiring: Those switchboard or local cable wires which are required to be segregated for electric reasons, such as wiring carrying tones. (Designated "C", "C2", "C4", and "C5" on the circuit schematics, depending upon the extent to which the segregation is required.) See **2. WIRING SYMBOLS USED ON MANUFACTURING DRAWINGS** for specific definitions of symbols.

Cable Form: A formation of wires not encased in a jacket. The wires are held in formation either by sewing with twine or banding with nylon cable ties (sewed form), or by means of fanning rings, fanning strips, or other wire retaining devices (loose wire form). Cable forms are of two types, those made of bulk wire and those made from the unjacketed ends of switchboard cables.

Coaxial Office Cable: An insulated conductor enclosed in a single or double covering of braided wire shielding and an outer insulation (jacket) that covers the shield.

Common Wire: Any wire supplying battery, ground, ringing, tone, etc, to more than one component. The connections between the several components are made by means of common straps or loop wires.

Common Strap: (See ***Strap.***) A continuous piece of wire which connects one or more terminals within an individually numbered circuit to terminals on succeeding or preceding numbered circuits for the purpose of supplying battery, ground, or other common potential to the components or to serve as a common wire for testing, listening, ringing, etc.

Connecting: The operation of securing or fastening wires to terminals such as by soldering, solderless wrapping, fastening with screws or clamps or quick-connects, or by any other approved method.

D Wiring: Wiring not sewed into cable forms. This includes "D", "D1", "D2", "D3", "D4", and "D5" wiring. Specific definitions for these symbols are covered in **2. WIRING SYMBOLS USED ON MANUFACTURING DRAWINGS.**

Double Stripper: That portion of a cable between two given points from which the outer covering is stripped or removed. The length of the double stripper is the distance between the stripper butts.

Dressing: The process of arranging wires and skinners with respect to terminals.

Extended Skinner Connection: A connection between adjacent terminals which is established by extending the bare end of a wire terminating on one of the terminals to the adjacent terminal or to the next terminal in line in order to avoid the use of a separate strap or loop.

F Stitch: A supplementary stitch on a local cable form for separating wires of the same color which are to be connected to different terminals of the same component.

F Stitch Wire or Lead: A wire placed under an F stitch on the cable form. For detailed description of "F" symbol, refer to **2. WIRING SYMBOLS USED ON MANUFACTURING DRAWINGS.**

Fanned Form: An arrangement where the wires are brought directly from the butt of the cable, or from the point where the wires leave a sewed or loose wire form through a fanning strip or other fanning device, to the terminals of components without being otherwise secured.

Formed Straps: Straps that are formed at each terminal to which they are to be connected, in such a manner as to clear other terminals or to provide a greater soldering surface.

Front: When used to designate the location of components or framework parts, "front" is generally that side from which the equipment is operated or the side on which the major maintenance operations are performed.

(a) On switchboards, desks, power bays, and panels, "front" is the side from which the equipment is operated.

(b) On relay racks, traffic and message register racks, and dial frames, "front" is the side on which the apparatus is mounted.

(c) With the use of duct-type frames (as used for toll transmission equipment) two different line-up arrangements are possible as follows.

(1) Single-sided arrangement, in which case "front" is the side requiring the greater activity or maintenance. In general, "front" is the wiring side. Exceptions to the general rule are such equipment as VF channel patch bays, K carrier sealed test terminal bays, K and L carrier HF patch and program patch bays, and television bays. In such exceptions, "front" is the operating side but the wiring is on the rear.

(2) Back-to-back arrangement, in which case two single-sided bays are located with the apparatus side butted each to the other. Here the wiring side of each bay is called "front".

Individual Strap: (See ***Strap.***) Straps that connect two or more terminals in the same individually numbered circuit for the purpose of supplying battery, ground, or other common potential to components or to serve as a common wire for testing, listening, ringing, etc.

Left: When used to designate equipment for switchboards, desks, frames, or racks, it shall be interpreted as being taken when facing the front of such switchboards, desks, frames, or racks.

Leg: (See ***Arm.***)

Local Cable: A cable composed wholly or in part of bulk wire held in cable formation by sewing with twine.

Loop Lead or Wire: Insulated wire run from terminal to terminal of same or adjacent components and sewed in the cable form instead of being run directly from terminal to terminal.

Loose Wire Form: Wiring held in cable formation by fanning rings, other wire retaining devices, or ties.

Multiple Twin (Quad): Two pairs twisted together.

Pair: Two wires run together and usually twisted. For example, paired wires might be twisted 360 degrees around each other manually or by machine at a frequency of one twist for each 1-1/2 inches of length.

Pair, Tight Twisted: Paired wires twisted either manually or by machine to a specific frequency of twist tighter than the frequency of twist normally furnished by the wire manufacturer. For example, paired wires initially manufactured with a twist length of 1.50 inches which have been additionally twisted to a length of 1.25 inches or less per completed twist.

Quad: (See ***Multiple Twin.***)

Quick-Connect Connection (Insulation Displacement Connection): A nonsoldered connection made by inserting an insulated wire between the two contact surfaces, of a slotted-beam type terminal with an approved tool in conformance with the requirements of BSP Section 800-612-154.

Rear: (See ***Front.***) When used to designate the location of components or framework parts, "rear" is

opposite that side of the frame which has been established as the "front".

(a) On switchboards, desks, power bays, and panels, "rear" is the side farthest away from the operator.

(b) On relay racks, traffic and message register racks, and dial frames, "rear", in general (except for unequal flange duct-type bays), is the wiring side of the frame.

Right: When used to designate equipment for switchboards, desks, frames, or racks, it shall be interpreted as being taken when facing the front of such switchboards, desks, frames, or racks.

Sewed Form: A formation of cable wires, bulk wires, or both bulk wires and cable wires compactly sewed in such a manner that the wires are brought out approximately opposite their associated terminals at the components.

Shiner: The end of the wire or skinner from which the insulation has been stripped to provide for connection to the terminal. (Also, sometimes used as the exposed portion of the conductor between the insulation and connection.)

Single Stripper: That portion of the end of a cable from which the outer covering is stripped or removed. The length of the single stripper is the distance between the butt and the end of the stripper before the conductors are unwound.

Skinner: In sewed forms, that portion of a wire including the shiner, where provided, which extends from the sewed portion of the form to the end of the wire. In fanned forms, either that portion of the wire including the shiner which extends from the butt of the cable when fanned directly from the butt, or that portion which extends from a sewed or loose wire cable form located between the cable butt and the end of the wire.

Skinner or Skin Length: The length of the insulated portion of the skinner excluding the shiner.

Skinning: The operation of removing the insulation from skinners or conductors.

Slanting Form: The arm of a switchboard short multiple cable form where the edge of the cable form nearest the components to which the wires are connected is slanting and not parallel to the rows of terminals on the components.

Slanting Skinners: Skinners which are of unequal length, and where the edge of the form nearest the apparatus to which the wires are soldered is slanting and not parallel to the row of terminals on the apparatus.

Sleeved Strap: (See ***Strap.***) A strap made of sleeved wire.

Soldering: The operation of fusing wire and terminal (or other metal parts) together by use of a suitable alloy of low melting point.

Solderless-Wrapped Connection: A nonsoldered connection which is made by wrapping a specific number of turns of a wire around a terminal with an approved wire wrapping tool in conformance with the requirements of Section 800-612-154.

Spare Wires: Extra wires placed in switchboard cable for use in cases where, through breakage or through other unusual cases, some of the regular wires in the cable are not available for use.

Splice Stripper: (See ***Double Stripper.***)

Straight Form: The arm of a switchboard short multiple cable form where the edge of the form nearest the components to which the wires are connected is straight and parallel to the rows of terminals on the components.

Straight Skinners: Skinners which are of equal length and where the edge of the form nearest the apparatus to which the wires are soldered is straight and parallel to the row of terminals.

Straight Straps: Straps run straight across terminals which are to be connected together.

Strap: (See ***Common Strap*** and ***Individual Strap.***) Straps may be of bare or insulated wire, run from terminal to terminal of the same or adjacent components and not included in a sewed form.

Strapping: The process of connecting two or more terminals on the same or adjacent pieces of apparatus by means of bare or sleeved wire, or loop leads, for the purpose of supplying battery or ground to apparatus, or to serve as a common lead for testing, listening, or other purpose.

Stripper: That portion of a cable from which the outer covering is stripped or removed.

Stripper Length: The length of that portion of a cable from which the outer covering has been stripped or removed.

Stripping: The operation of removing the outer covering or sheath of a cable together with the inner wrapping (when provided), thus exposing the wires.

Subarm: A branch of an arm (an arm which breaks out of another arm).

Surface Strapping: Strapping located near the end rather than at the base of the terminal to facilitate frequent changing or removal for maintenance purposes.

Surface Wiring: Wiring which is run loose and dressed near or against the mounting plate or panel, such as "SW1" and "D3" wiring.

Switchboard Cable: Any cable with a plastic (or fabric) sheath or covering.

Switchboard Wire: Colored bulk wire of the type used in local cable.

Tight Twisted Pair: (See ***Pair, Tight Twisted.***)

Tip End: The end of the cable arm farthest from the butt or main body of the cable. On a cable which has no butt, the end of the cable with the smallest diameter.

Tip Leg: The leg farthest from the butt or main body of a cable form having two or more legs or branches.

Triple: Three wires twisted together.

U Wiring: Shielded wire or cable. Designated "U", "U1", "U2", etc, "CU", "EU", or "RU" depending upon the type of wire or cable.

Unequipped Wires: Regular wires, other than spare wires, which are formed out for future components but which are not used initially. The unused wires in universal local cables are classed as unequipped wires.

Unused Wires: Regular wires, other than spare or unequipped wires, which are not required for future use and which are generally left dead in the form or at apparatus fanning strips.

"X", "Y", "Z", etc, Wiring: Wires so designated on circuit drawings in cases where it is necessary to distinguish between several wiring arrangements for a particular part of a circuit. The particular wiring to be used is specified on the circuit drawings, on wiring list drawings, or in job specifications.

5. REASONS FOR REISSUE

1. To add 1.04.

2. To add 1.05 reference to Section 800-610-152.

3. To add Note under 2.01 formerly shown as footnotes for the C through C5 and D through D3 wiring symbols.

4. To revise the meanings under 2.01 for the symbols:

SYMBOL	MEANING
B	To clarify the location of the terminal nearest the base for horizontally and vertically mounted terminal strips with two fanning strips.
(BP)	To change this symbol to (X) for binding post.
CU	To include reference to 731A KS-19224 and KS-21112 type coaxial cables.
D3	To include information for wiring run adjacent to the plane of the mounting surface and to indicate that BW-type wires other than 24-gauge are to be used for D3 wiring, and to add note indicating that BU- or BY-type wire should not be used for surface wiring; and to omit reference to BG wire which is rated Mfr Disc.
EU	To include reference to KS-19195 L2, KS-19414, and DL-type wires.

SYMBOL	MEANING
GT	To rate this symbol and meaning Mfr Disc.
O	To revise the symbol for "cross-connecting terminal" formerly designated (X).
OC	To indicate that wires need not be looped.
RU	To include reference to 762-, 763-, and 764-type cables.
SC	To omit this symbol which is replaced by the symbol (X).
SW1	To include information for wiring run adjacent to the plane of the mounting surface.
U	To include reference to BK-type wire and shielded pairs in 479M cable.

5. To add to 2.01, the meanings for the symbols CC, D4, D5, FT, PW, (X), and —□□— .

6. In 2.01, to rate the symbols GT and —⋯— Mfr Disc. since ground tracer wires are no longer furnished in Bell System coded shielded wire.

7. In 3.01 and 3.05, to add abbreviation IPvc .

8. To add to 3.05, abbreviation for Polyethylene, Polyvinyl Chloride.

9. In **4. DEFINITIONS OF WIRING, CABLING, AND CONNECTING TERMS** to:

   (a) Add 4.01.

   (b) Add definitions for: Banjo Strapping, Coaxial Office Cables, Formed Straps, Quick Connect Connections, Connecting, Skin Length, Slanting Skinners, Solderless-Wrapped Connection, Straight Skinners, Straight Straps, Strapping, Subarm, and "X", "Y", "Z", etc Wiring.

   (c) Revise the definitions of:

   C wiring—to include reference to **2. WIRING SYMBOLS USED ON MANUFACTURING DRAWINGS.**

   Cable Form—for clarification

   D Wiring—to include D4 and D5, and to reference **2. WIRING SYMBOLS USED ON MANUFACTURING DRAWINGS.**

   F Stitch Wire or Lead—to reference **2. WIRING SYMBOLS USED ON MANUFACTURING DRAWINGS.**

   Front—to omit subparagraph (c) (3) referencing double sided arrangement for unequal flange duct-type bays since this is not applicable to such bays.

   Loop Lead or Wire—to replace reference to "color coded switchboard" with "insulated common wire".

   Pair—to indicate that pairs are not always twisted together.

   Rear—to exclude reference to wiring side (rear) for unequal flange duct-type bays.

   Skinner—to indicate that the shiner is considered as part of the skinner.

   Stripper Length—to add this term and definition.

   (d) Omit definition for ground tracer wire since it is no longer provided in Bell System coded shielded wires.